

New South African species of the genus *Scutellisetia* Richards (Diptera: Sphaeroceridae)

by

O. W. Richards

(Imperial College, London S.W.7)

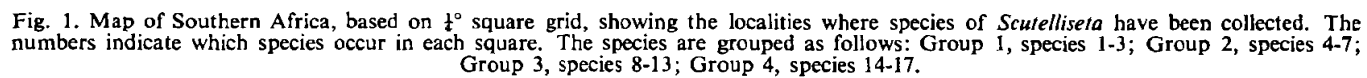
SYNOPSIS

A new diagnosis of the genus *Scutellisetia* Richards, 1960, is given, based on further material of the type species and sixteen new species which are described and keyed; these seventeen species are divided on morphological criteria into four groups: Group 1—*mesaptiloides* n. sp., *caledoniana* n. sp., *orbitalis* n. sp.; Group 2—*luteifrons* n. sp., *albicoxa* n. sp., *xanthothorax* n. sp., *coriacea* Richards; Group 3—*lepidogaster* n. sp., *peregrina* n. sp., *leonina* n. sp., *bicolorina* n. sp., *brunneonigra* n. sp., *swaziana* n. sp.; Group 4—*microptera* n. sp., *megalogaster* n. sp., *nigrocoerulea* n. sp., *procoxalis* n. sp. Species of Group 1 are confined to the winter-rainfall area in the South-West Cape, those in Group 2 are from the Southern Cape coastal strip, those in Groups 3 and 4 are from montane forests in Natal, Swaziland and the Eastern Transvaal escarpment. All the species are flightless and humicolous. It is considered that these species originated from perhaps four closely allied ancestral species dimorphic in respect of wing development, and that loss of wings, halteres and other modifications evolved polyphyletically.

In 1960, I received from Mr. B. R. Stuckenberg and described a wingless fly from Eastern Cape Province (Storms River Pass). This was a new species of a new genus of Sphaeroceridae, *Scutellisetia* Richards, 1960, distinguished especially by the situation of the posterior ocelli on the extreme occipital margin, the reduced basal scutellar bristles, the broad prosternum, the single pair of well-developed dorsocentral bristles, the absence of post-vertical bristles or of any long bristles on the abdomen. The relation of the genus to the other wingless members of the family was indicated in a key (Richards, 1965:455-459).

In December, 1961, I received a considerably larger collection of flies, obtained in various parts of the Republic and also in the adjacent part of Swaziland by Monsieur N. Leleup. I was unable to study these for some time and received a second smaller consignment in April, 1965. I now had 126♂ 148♀ of *Scutellisetia* in which I now distinguish 17 species. There are also a few winged or brachypterous Sphaeroceridae which seem to be unrelated to *Scutellisetia* and which will be described elsewhere. There were further some wingless Phoridae and a wingless Chloropid but these I have not studied.

The definition of *Scutellisetia* has now to be somewhat enlarged since some species have rudimentary wings and there are variations in chaetotaxy and in the shape of the prosternum. All, however, possess a rather uniform type of male genitalia and the genus seems



to be clearly monophyletic and distinct from the numerous wingless and brachypterous forms of Central and East Africa. The species seem to be found in litter in relatively damp habitats, often valleys or ravines containing remnants of tall forest, in some cases, e.g. Tsitsikame Forest, montane forest. It is quite probable that these habitats in the not very remote past were much less widely separated than they are to-day. The species (see key p. 00) can be placed in four groups and it will be seen in Table 1 that the first two groups are confined to Cape Province, while members of groups 3 and 4 (which are rather distinct) are found in Natal, Swaziland and Transvaal. In the present records there are never more than three species (two of any group) in one district and the species are never found in more than one district. The districts, except for Barberton and Piggs Peak which are only a few kilometres apart, are all separated from one another by at least 100 km and usually much more (Table 1 and fig. 1). I believe that the most probable explanation for this type of distribution is that at one time there were several (perhaps four) closely allied dimorphic ancestral species and that the long-winged types have now died out and in many of the derived forms the wings have been completely lost. Such dimorphic species are well-known in the family, e.g. *Leptocera fenestralis* (Fall.). In effect, this postulates an essentially monophyletic origin (the four ancestors were closely allied members of one genus) but a polyphyletic evolution of some of the more extreme modifications, particularly the complete loss of halteres and in many species of wings.

In the course of describing the species, I made a number of measurements with an eyepiece-micrometer in order to make more precise statements about the relative lengths of bristles, wings, thorax, etc. These are given in the form of a Table (Table 2). As the significance of the measurements is almost entirely relative I have given them in the form of micrometer units (1 unit=0.0164 mm.). Usually, two specimens of each sex were measured to give some idea of the variation; the sexes are recorded separately where they seem to be markedly dimorphic. The measurements are rarely suitable by themselves for identifying a species but they supplement the less quantitative statements made in the descriptions and the keys. Some of the structures are rather difficult to measure or the parts may be liable to damage, so that there may well be some error. The figures of the male genitalia are all to the same approximate scale which is shown in fig. 15.

All the specimens were preserved in alcohol; although this is excellent for many purposes, it obscures any differences that there may be in the distribution of tomentum and it may also influence colour. No characters from the tomental pattern have been described. The specimens were sent in numbered tubes and the key to the numbers was given in French; I have translated the data into English. Some heights were given in metres, some in feet; I have converted all into metres. All holotypes are being placed in the Natal Museum; some paratypes will be put in the Transvaal Museum and the British Museum, (N.H.).

TABLE 1

Species of *Scutellisetia*: number of specimens and pattern of distribution

Species group	Species	No. of specimens		Province	District
		♂	♀		
1	<i>mesaptiloides</i>	11	8	Cape	Table Mt.
1	<i>caledoniana</i>	1	2	"	Caledon
1	<i>orbitalis</i>	6	0	"	Swellendam
2	<i>luteifrons</i>	10	3	"	Knysna
2	<i>albicoxa</i>	8	8	"	Knysna
2	<i>xanthothorax</i>	1	7	"	Humansdorp
2	<i>coriacea</i>	2*	2*	"	Humansdorp
3	<i>leonina</i>	1	0	Natal	Lions River
3	<i>bicolorina</i>	8	9	"	Bergville
4	<i>procoxalis</i>	8	9	"	Nongoma
3	<i>swaziana</i>	2	6	Swaziland	Piggs Peak
4	<i>megalogaster</i>	3	1	"	Piggs Peak
3	<i>lepigogaster</i>	28	22	Transvaal	Pilgrim's Rest
3	<i>peregrina</i>	22	16	"	Pilgrim's Rest
3	<i>brunneonigra</i>	6	4	"	Barberton
4	<i>nigrocaerulea</i>	5	4	"	Pilgrim's Rest
4	<i>microptera</i>	4	48	"	Pietersburg

*also 4♂ 1♀ from same place in 1960

Scutellisetia Richards, 1960. New diagnosis

Eyes quite large, at most a little reduced when the longer diameter may be fully twice as long as the shorter one. Ocelli usually rather small, in *S. megalogaster* sp.n. absent except for the median ocellus in the ♂, in *S. brunneonigra* sp.n. completely absent, posterior pair lying on the occipital margin. Vibrissa well-developed but all other buccal bristles very small. Mouth-edge and facial knob a little protruding but varying very little amongst the species. Antennae widely separated, first segment with a microscopic bristle on its inner side, arista long with short or moderate pubescence. Head either with two superior orbitals or the anterior one absent, one large outwardly directed external vertical, one large divergent ocellar bristle; postvertical normally missing but present as a microscopic bristle in *S. leonina* sp.n.; no row of small bristles behind the eyes. Mesoscutum usually transverse, sometimes quadrate, with the following bristles on each side: a minute humeral, a small or moderate notopleural, a small prealar, a large postalar, and a small to large dorsocentral arising either near the scutellum or more anteriorly, halfway to the suture; 14-20 longitudinal rows of small microchaetes, no enlarged acrostichals. Scutellum moderately or strongly transverse, hind margin either moderately curved or almost straight, usually two apical bristles long and the basal pair very short, but occasionally both pairs are quite short. Halteres absent; wings absent, scale-like, short and broadly triangular, or relatively long (extending to middle of first tergal plate) and narrowly triangular, sometimes sexually dimorphic. Sternopleuron with one moderate, small or minute bristle, rarely absent. Prosternum either twice as long as broad (fig. 3), quadrate (fig. 4) or twice as broad as long (fig. 5), but never even approximately linear. Fore legs with coxa varying in length from half as long to nearly as long as tibia, tarsal segments 2-5 usually white, always rather pale. Mid legs with the inner side of the ♂ trochanter often with modified bristles, tibia with a distinct apicoventral bristle. Hind legs without bristles, tibia without a micro-

scopic spur. Abdomen longer than head + thorax, broader than thorax, tergites sharp-edged but sternites little sunk in, first tergal plate large but not tending to form an anterior neck, numerous short microchaetes, on tergite 3 forming three to four transverse rows of about 20 bristles, no long bristles, even on male ninth tergite; sternites very transverse, sternite 3 five to eight times as wide as long; ♀ with small cerci bearing one or two pairs of short bristles; ♂ fifth sternite gently emarginate, emargination usually partly filled in at a lower level, near centre preceded by 6-8 short stout, often somewhat flattened oblique bristles; genitalia not large, anal split with a pair of elongate sclerotisations, sometimes very pale but always visible; cerci feebly sclerotised, fused with ninth tergite, usually subquadrate, sometimes transverse, with one long and many small bristles; forceps with a basal bristly part of variable shape and a process which is blackened and often somewhat curved; posterior gonapophyses approximated or rather widely separated, narrow, straight or more or less strongly curved downwards: aedeagus with lateral expansions at the base (seen by transparency through anal membrane) which vary specifically in shape, more posterior part of aedeagus consisting of two lateral struts often somewhat angled at their centre and joined by a thin plate of varying extent, the whole structure rather shovel-shaped.

Type of the genus: *Scutelliseta coriacea* Richards, 1960.

In my key to the flightless species of the Sphaeroceridae (1965: 455) it will run down in more than one place but the key requires some modifications to accommodate it. The winged species run to couplet 5 where *S. megalogaster* sp.n. and *S. brunneonigra* sp.n. would give trouble because they lack or partially lack ocelli. Ignoring this, there is difficulty in couplet 6 since although there is no tibial spur, the basal scutellar bristles may be so small as easily to be overlooked and the row of bristles behind the eyes is absent. In couplet 9, the wings may be short and broad, but the prosternum is never linear, so that one must proceed to 13. The scutellum is much more transverse than in either *Phthitia* Enderlein or *Frutillaria* Rich. and there is only one pair of dorsocentral bristles; it differs from *Penola* Rich. in not having the wings thread-like, having no postocellar bristles, but having dorsocentrals and much more numerous microchaetes on the mesoscutum. Superficially, the winged species are more like the East African *Aluligera* Rich. but the prosternum is widened and the abdomen lacks long bristles.

The species which are completely or almost completely wingless run down to *Scutelliseta* in couplet 18 except that the head may have only one superior orbital bristle and in one species a microscopic postvertical. The wingless species in which the basal scutellar bristle is not extremely short (*S. procoxalis* sp.n. and ♀ *S. swaziana* sp.n.) might run to *Trisetomyia* Richards but have only 1 or 2 superior orbital bristles, not 3 and the process of the ♂ genital forceps is not widened at its end. The wingless ♀ of *S. brunneonigra* sp.n.,

because it lacks ocelli, would run to *Ocellipsis* Rich, in couplet 30, but that genus has no superior orbitals, no ocellars and much smaller ♂ genital forceps.

GROUP 1. *PROSTERNUM TWICE AS LONG AS BROAD* (FIG. 2).

(1) *Scutellisetia mesaptiloides* sp.n.

♂ ♀. Head orange-brown, frontal stripe and lateral stripes darker, latter partly paler in front, second antennal segment darker; thorax black with some reddish tints; legs reddish-brown to black, tibiae and fore and hind basitarsus darker. Front tarsal segments 2-5 white. Abdomen black. Surface apparently generally dull but tergites more shining but looking almost scaly since each microchaete rises from a slight prominence. Length about 2.0 mm.

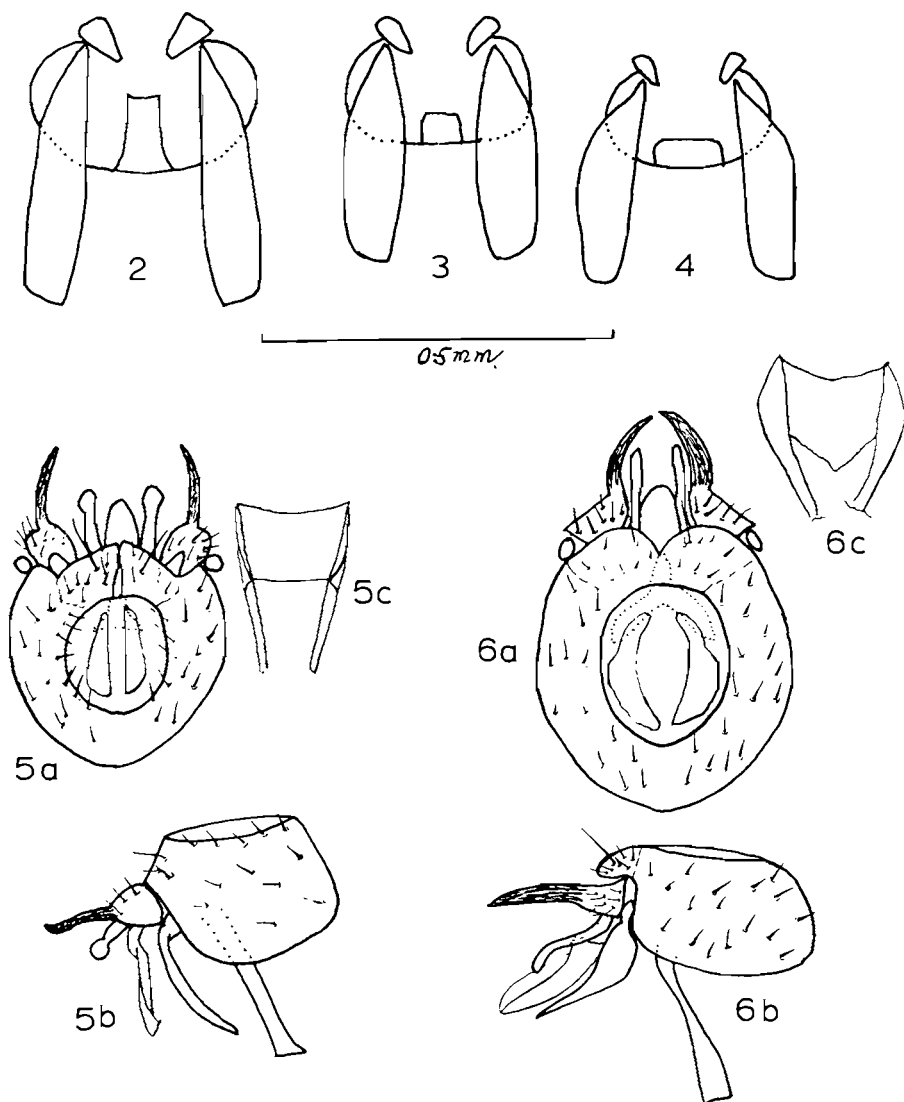
Eyes a little reduced, lengthened in long axis of body but sloping somewhat down towards mouth, more than one and a half times as long as broad, with a slight emargination of inner edge opposite antenna. Ocelli present but small. Buccae in front as wide as third antennal segment, rather more than twice as wide behind, lower posterior corner of head a right angle. Arista about 4 times as long as antenna, with very short pubescence, almost bare. Frontal area rather well marked off, at least by colour, head on each side with no or very small interfrontals, one large posterior inwardly directed superior orbital. Mesoscutum not quite twice as long as head, considerably narrower in front than behind where distinctly wider than head + eyes, one moderate prescutellar dorsocentral; scutellum about two and a half times as broad as long, hind margin only a little curved, basal bristles very short, half as long as scutellum, apical bristles as long as dorsocentral, nearly twice as long as scutellum. Wings and halteres absent. Sternopleuron with a minute hair only. Prosternum (fig. 2) about twice as long as broad, sides a little concave, front margin truncate, not much wider than fore basitarsus. Fore legs with coxa two-thirds as long as tibia; ♂ mid trochanter with 4 small stout black bristles; femur anteriorly with a strong outstanding preapical bristle, preceded by a shorter one; tibia with long dorsal bristles at $\frac{1}{3}$ and $\frac{4}{5}$, latter surmounted by a pair of short bristles, apicoventral moderate; basitarsus about half as long as tibia with rather strong setulae beneath; Abdomen one-third longer than head + thorax, about two and a half times as long as broad, a little wider than thorax, sternite 3 fully five times as wide as long, Genitalia (fig. 5) with anal split broad oval with two large subtriangular sclerotisations; cerci represented by linear struts meeting on mid line, otherwise membranous; forceps with a somewhat pyriform basal plate bearing 4-5 long bristles and a long stout black hook, bent a little inwards and downwards, these two processes unusually widely separated in dorsal view; posterior gonapophyses moderately approximated, end somewhat expanded and truncate; aedeagus with lateral slightly diverging struts with a small point near their centre, distal third joined by a weakly sclerotised plate; ♀ cerci with a small dorsal and a longer more sinuous ventral bristle.

South Africa, Cape Province, east slope of Table Mt., Kirstenbosch, 300 m., humus in forest, November, 1960 (ZA. 39) 1 ♂ holotype; Table Mt., Orange Kloof, 3-400 m., humus in forest, December, 1960 (ZA. 44), 3 ♂ paratypes; Table Mt., Constanica, 600 m., plantation of *Populus*, humus, December, 1960 (ZA. 50), 2 ♂ 1 ♀ paratypes; "Cape Province" (no number) 1 ♂ 4 ♀ paratypes. The specimens were all collected by Mons. N. Leleup.

TABLE 2

Measurements of species of *Scutelliset* in micrometer units (1 unit = 0.0164)

Species		Length arista	Length head	Length thorax	Width thorax	Length abdomen	Width abdomen	Length abdominal tergite				Length scutellum	Width scutellum	Length Wings	Fore coxa		Fore tibia length	Bristles scutellar apical	scutellar basal	dorso- central	postalar	Distance base dc. to scutellar margin
								1+2	3	4	5				length	breadth						
<i>mesaptiloides</i>	♂ ♀	30—38	14—17	27	41	72—73	52—59	32—34	19—23	13—15	8—9	6—10	20—21	—	14—16	6—7	22—24	12—15	0—4	13—18	17—21	7
<i>orbitalis</i>	♀	30—37	14—18	24—32	31—43	52—70	38—51	28—30	11—19	8—9	5—6	6—7	16—23	—	16—18	5—7	20—27	12—17	3—5	14—15	17—23	4—6
<i>caledoniana</i>	♂ ♀	38—43	12—17	27—28	32—37	60—73	45—52	26—28	18	13—15	8—9	7	17—20	♂23	16—18	6—7	22—24	17—21	3—4	12—14	16—17	6—8
<i>luteifrons</i>	♂ ♀	32—40	12—15	22—25	29—37	57—58	42—46	25—32	12—17	8—10	4—6	4—6	11—16	—	16—18	5—6	20—21	13—16	0—3	9—12	15—17	7—8
<i>xanthothorax</i>	♂ ♀	33—35	12—13	22—27	30—33	40—58	38—44	21—23	12—16	10—11	6	6—7	12—14	—	24	6	21—24	17—18	3	11—14	15—16	9—10
<i>coriacea</i>	♂ ♀	37—40	14—15	23—31	30—35	55—61	30—35	24—28	14—15	10—11	8—10	6—8	12—17	—	22—24	7	22—24	18—24	0—4	12—18	12—19	10
<i>albicoxa</i>	♂ ♀	35—40	13—17	27—28	31—37	59—80	34—51	28—30	13—20	10—16	7—10	8—9	15—16	—	26—27	7	26—29	17—20	0—3	17—18	17—18	11
<i>lepidogaster</i>	♂ ♀	32—37	12—14	18—22	30—38	44—58	35—46	18—26	10—16	9—12	5—7	7—8	17—22	12—15	12—16	5—7	18—22	6—10	6—8	10—13	13—17	4—5
<i>peregrina</i>	♂ ♀	33—40	12—14	23—26	30—36	48—67	38—47	27—31	15—16	10—12	6—7	5—7	17—20	3	14—18	5—6	17—23	10—12	3—4	7—12	14—16	4—5
<i>leonina</i>	♂	37	14	30	35	65	42	27	17	11	6	9	20	28	22	6	27	?	3	8+	12+	3
<i>bicolorina</i>	♂ ♀	35—42	11—14	26—32	34—38	61—67	43—46	33—37	16—19	9—12	5—7	8—9	12—19	♂24—27	17—21	5—6	19—24	20—22	3—5	10—13	13—19	4—6
<i>brunneonigrè</i>	♂ ♀	37	10—14	19—24	30—33	53—57	40—43	28—30	12—15	7—9	5—7	6—8	14—15	♂14—16	12—15	5—6	15—19	12—15	3—4	5—7	12—16	3—4
<i>swaziana</i>	♂ ♀	37—40	13—15	22—27	32—36	58—65	40—42	32—33	13—14	8—9	5—7	8	17—20	♂22—27	15—19	6—7	20—24	15—17	7	5	16—19	3
<i>microptera</i>	♂ ♀	28—37	12—14	23	31—32	48—56	39—48	21—26	12—14	9—11	5—8	7—8	19	♀ 2—3	15—19	6—7	20—24	15—17	7	5	16—19	3
<i>megalogaster</i>	♂	31—35	11	17	34	43	46	30	12	7	4	7	23	7—9	11—13	5—6	17—22	8—10	4—6	5—10	12—16	3—6
	♀	37	12	23	37	52	53	37	13	8	6	7	26	17	16	6	21	10	7	12	13	5
<i>nigrocaerulea</i>	♂	32	11—12	18	30—31	43—54	36—39	18—28	11—12	7—10	5—6	7—12	17	9	17	5	21	11	?	?	17	5
	♀	34—35	12	23	37	64	54	29	15	12	7	8	21	9—10	11	5	15	7	8	11	12	2—3
<i>procoxalis</i>	♂	33—38	10—13	18—24	32—34	43—48	41—42	24—30	12—14	7—9	4	6—7	19	13	18	8	21	9	10—11	12—14	12—17	2—3
	♀	33—38	12—19	21—28	35—38	55—56	43—51	28—34	13—16	9	6	6—7	16—18	—	17—19	5—6	21—24	10	7	10	13	10
														—	17—18	6—7	21—22	10—13	7	12—14	15—17	14



Figs. 2-6. The prosternum of (2) *Scutelliseta mesaptiloides* sp. n., (3) *S. peregrina* sp. n., (4) *S. nigrocaerulea* sp. n. Male genitalia of (5) *S. mesaptiloides* sp. n., (6) *S. caledoniana* sp. n., (a) dorsal, (b) right side, (c) aedeagus dorsal.

(2) *Scutellisetia caledoniana* sp.n.

♂ ♀. Black; antennae yellow-brown, tarsi brown, trochanters, knees and sometimes hind tibiae also brownish; fore basitarsus sometimes darker, segments 2-5 paler, but hardly whitish. Surface apparently shining. Length 1.6-2.0 mm.

Eyes large, longer diameter shorter than one and a half times the shorter one, ocelli distinct. Buccae in front nearly as wide as width of third antennal segment, less than two and a half times as wide behind, posterior corner rounded, perpendicular from it on to eye about as long as half the shorter diameter of eye. Arista about $4\frac{1}{2}$ times as long as antenna with short pubescence, base of arista yellowish. Frontal area scarcely marked off, 3 minute interfrontals, one moderate outwardly and backwardly directed anterior and one moderate inwardly directed posterior superior orbital. Mesoscutum transverse, a little wider behind than in front, less than one and a half times as long as head, one moderate posterior dorsocentral on each side; scutellum feebly rounded behind, two and a half times as wide as long, apical bristle longer than the postalar, basal very short and fine; sternopleural bristle small but distinct. Prosternum nearly twice as long as broad, about as wide as fore tibia, anterior margin a little emarginate. Wings absent in ♀, in ♂ long and narrow, extending one-third of way across tergal plate 1+2, costa indicated, bristles all very small. Fore legs with coxa at least two-thirds as long as tibia; with ♂ trochanter bearing about three stout oblique black bristles, femur with an anterior preapical bristle preceded by a smaller one, tibia with a strong dorsal bristle at $\frac{1}{4}$ preceded by a minute anterodorsal, and at $\frac{3}{8}$ preceded by a pair of small bristles, apicoventral shorter in ♂, basitarsus long, about half as long as tibia with fine setulae beneath. Abdomen broad oval, longer than head + thorax and wider than thorax, microchaetes denser and a little longer than usual; sternite 3 about six times as wide as long. Genitalia (fig. 6) with anal split broad oval with two distinct crescentic, sclerotised patches, basal expansion of aedeagus deeply, angularly emarginate, arms pointed; cerci rather more sclerotised than usual, meeting for a short distance along mid line, approximately rectangular with inner distal corner rounded; forceps with basal part approximately rectangular, proximal angle rather prominent, process black, sinuous, meeting its fellow at the tip, not bent downwards; posterior gonapophyses moderately approximated, diverging then converging again and becoming parallel, tip not expanded or truncate, gonapophyses rather strongly bent downwards; aedeagus with rather wide lateral struts, partly connected below by a feebly sclerotised band; forked plate wider than usual, in dorsal view more or less triangular. Cerci in ♀ with a short straight bristle.

South Africa, Cape Province: Caledon district, Sonder End Berg, Oubos to Lindeshof, humus, January, 1961 (ZA. 57) ♂ holotype, 2♀ paratypes.

(3) *Scutellisetia orbitalis* sp.n.

♂. Black; head orange, lower part darker, especially posteriorly, frons darker with two paler stripes on each side of narrow frontal area and two stripes almost but not quite along inner margins of eyes; legs more or less reddish brown, coxae and femora often darker, tarsi usually paler; fore tarsal segments 2-5 paler, more or less whitish. Thorax often reddish tinged. Length 1.4-1.9 mm.

Eyes scarcely reduced, longer diameter nearly twice as long as shorter one, inner margin very little emarginate opposite antennae, ocelli small but distinct. Buccae in front fully threequarters as wide as third antennal segment, two and half times as wide behind, posterior corner a rounded right angle, perpendicular from it onto eye nearly as long as shorter eye diameter. Arista about four times as long as antenna with short pubescence. Frontal area long and narrow, well-defined by stripes, two or three minute interfrontal bristles, one strong anterior outwardly and backwardly directed superior orbital, one posterior even stronger inwardly and backwardly directed superior orbital. Mesoscutum moderately transverse, little wider behind than in front and hardly angled behind, fully one and a half times as long as head, one strong dorsocentral arising much nearer to scutellum than to suture; scutellum transverse, about two and a half times as long as broad, hind margin little curved, apical bristles strong, basal weak, less than half as long; sternopleural bristle strong. Wings absent. Prosteronum twice as long as broad. Fore legs with coxa two-thirds as long as tibia; mid leg with dense short pubescence on inner side of trochanter, femur with one strong and one short anterior preapical, tibia with very strong dorsal bristles at $\frac{1}{4}$ and $\frac{4}{5}$, latter surmounted by a pair of small bristles, a moderate apicoventral, basitarsus long, fully half as long as tibia, with rather close short setulae. Abdomen long oval, longer than head + thorax and wider than thorax, sternite 3 six times as wide as long, apices of sternites blacker and more shining. Genitalia (fig. 7) with anal split nearly circular with strong elongate-triangular sclerotisations, basal expansions of aedeagus narrow, pointed, widely divaricate, shallowly emarginate behind; cerci large, feebly sclerotised, meeting at a point in centre, somewhat angled below, with one strong and several short bristles; genital forceps with basal part subcircular with rather short hairs, processes black, narrow, pointed slightly curved, convergent and crossing; eighth sternite forming a curved process which surrounds the base of the forceps; posterior gonapophyses somewhat approximated, straight, and a little hooked; aedeagus wide, with stout lateral struts slightly angled in the middle but generally parallel, joined by a thin plate.

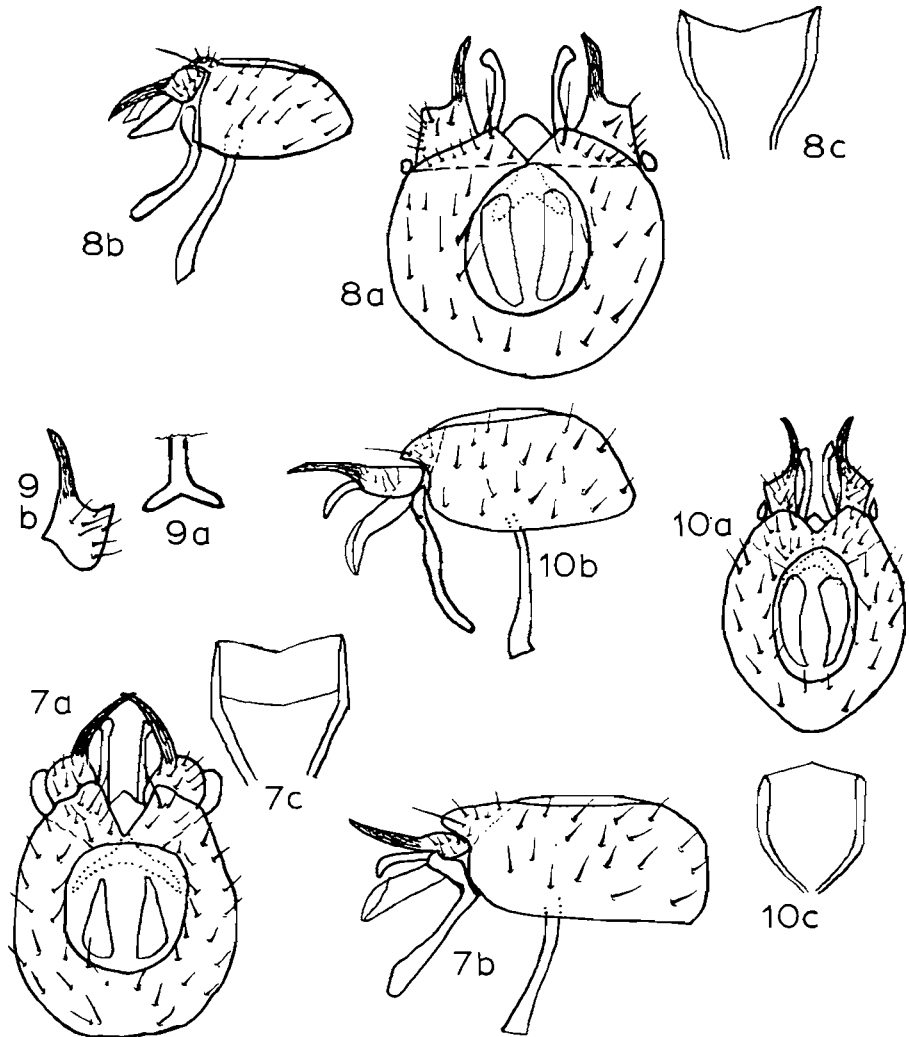
South Africa, Cape Province: Swellendam district, Grootvadersbos, humus, July, 1962 (ZA. 102), 6 ♂ including the holotype.

GROUP 2. PROSTERONUM QUADRATE (FIG. 3.) DORSOCENTRAL ARISING WELL IN FRONT OF SCUTELLAR MARGIN:

(4) *Scutelliseta luteifrons* sp.n.

♂ ♀. Head, including antennae, ochreous yellow, mouth edge, buccal margin and posterior head margin darker; thorax dark orange-brown, scutellum and margin of mesoscutum somewhat darker, abdomen black, legs black, trochanters, knees and tarsi orange to brown, fore basitarsus black, fore tarsal segments 2-5 white or whitish. Surface probably shining. Length 1.3-1.6 mm.

Eyes large, not more than one and a half times longer than broad, ocelli very small. Buccae in front about two-thirds as wide as third antennal segment two and a half times as wide behind, hind corner of head a little rounded, perpendicular from corner onto eye about two-thirds as long as smaller eye diameter. Arista hardly four times as long as antenna, with very short pubescence. Frontal triangle not marked off, two minute inter-



Figs. 7-10. Male genitalia of (7) *Scutelliseta orbitalis* sp. n., (8) *S. luteifrons* sp. n., (a) dorsal, (b) right side, (c) aedeagus dorsal; (9) *S. albicoxa* sp. n., (10) *S. xanthothorax* sp. n., (a) base of aedeagus, dorsal, (b) left forceps, dorsal.

frontals, one moderate outward and backwardly directed superior orbital, one rather stronger posterior inwardly directed superior orbital. Mesoscutum transverse, about half as long again as head, scarcely broader behind than in front, mesoscutum with a moderate dorsocentral about half way between scutellum and suture on each side. Scutellum small, two and a half times as broad as long, hind margin moderately curved, with apicals moderately long, diverging, basals absent or very fine and small; sternopleuron with a small but distinct bristle. Prosternum about quadrate, about as wide as thickest part of fore

tibia, anterior angles rounded. Wings completely absent. Fore legs with coxa nearly as long as tibia; ♂ mid trochanter without modified bristles, femur with a strong anterior preapical, tibia with a pair of strong bristles surmounted by a minute anterodorsal at $\frac{1}{3}$, a strong dorsal surmounted by a small anterodorsal at $\frac{4}{5}$, a moderate apicoventral, basitarsus not very long, less than half as long as tibia, with very fine setulae beneath. Abdomen rather broad oval, about two-thirds as wide as long, broader than thorax and longer than head + thorax, sternite 3 at least six times as wide as long. Genitalia (fig. 8) with anal split rather small, broad oval; lateral expansions of aedeagus rather short, broad but pointed, posterior emargination a shallow curve; cerci somewhat more sclerotised than in most species, hardly marked off from tergite, meeting at a point on mid-line and then emarginate and so separated, inner ventral corner rather pointed; forceps with a somewhat large, subquadrate base bearing a few bristles and a blackened, pointed process, curving somewhat downwards, well separated from and parallel to its fellow; posterior gonapophyses relatively close together, somewhat convex inwards, tips a little expanded; aedeagus with somewhat diverging but more distally parallel lateral struts, broadly connected by a thin plate, in side view rather shovel-shaped. Female with segments 6 and 7 short but distinct, cerci mainly concealed with a short straight bristle.

South Africa, Cape Province: Knysna district, Swart River forest, between George and Knysna, humus, January, 1961 (ZA. 59), ♂ holotype, 9 ♂ 3 ♀ paratypes.

(5) *Scutelliseta albicoxa* sp.n.

♂ ♀. Black (or in two specimens reddish-brown, perhaps immature but apparently hard); antennae pale brown, second segment almost yellowish; legs more or less dark brown, fore femur almost black, fore coxa, base of fore tibia and fore tarsal segments 2-5 whitish or very pale yellow; mid tarsi also rather pale. Thorax and abdomen finely reticulate, surface probably rather dull. Length ♂ 1.3-1.9, ♀ 1.2-2.5 mm.

Eyes large, not more than one and a half times as long as broad, ocelli small. Buccae in front about three-quarters as wide as third antennal segment, two and a half times as wide behind, hind corner of head a little rounded, perpendicular from corner onto eye rather more than half as long as the smaller eye-diameter. Arista four times as long as antenna with very short pubescence. Frontal triangle relatively broad but very feebly marked off, three minute interfrontals, one rather small outwardly and backwardly directed anterior superior orbital, one rather stronger posterior inwardly directed superior orbital. Mesoscutum quadrate but angles somewhat rounded, widest near the middle, about twice as long as head, a moderate dorsocentral bristle arising about halfway between suture and hind margin; scutellum larger and hind margin more curved than in most species, not much more than twice as wide as long, on each side with a long diverging apical bristle, basal absent or very fine and short; sternopleuron without a bristle. Prosternum about quadrate but a little narrower in front than behind, front margin straight, width about equal to that of fore tibia. Wings completely absent. Fore legs with coxae long, almost as long as tibia. Mid legs with ♂ trochanter having 6-7 very short stout bristles, in ♀ with hairs only, femur with a stout anterior preapical, tibia with a strong dorsal at $\frac{1}{4}$ surmounted by a small bristle, a strong dorsal at $\frac{3}{4}$ surmounted by a small anterodorsal, a short apicoventral,

basitarsus about half as long as tibia with rather coarse setulae beneath. Abdomen rather narrowly oval, longer than the head + thorax, hardly wider than the mesoscutum, sternite 3 rather more than four times as wide as long. Genitalia (fig. 9) very like those of *S. luteifrons* but arms of basal expansions of aedeagus narrower and more divergent, basal part of forceps with a more acute outer angle (although the extent of this varies somewhat), cerci larger and not quite so pointed. The ♀ cerci also appear to be similar.

Four specimens (2 ♂ 2 ♀) are black, with the head and thorax (♂) or even the whole body (♂ ♀) brown. They otherwise resemble the black specimens and were found in the same sample. They are not obviously immature.

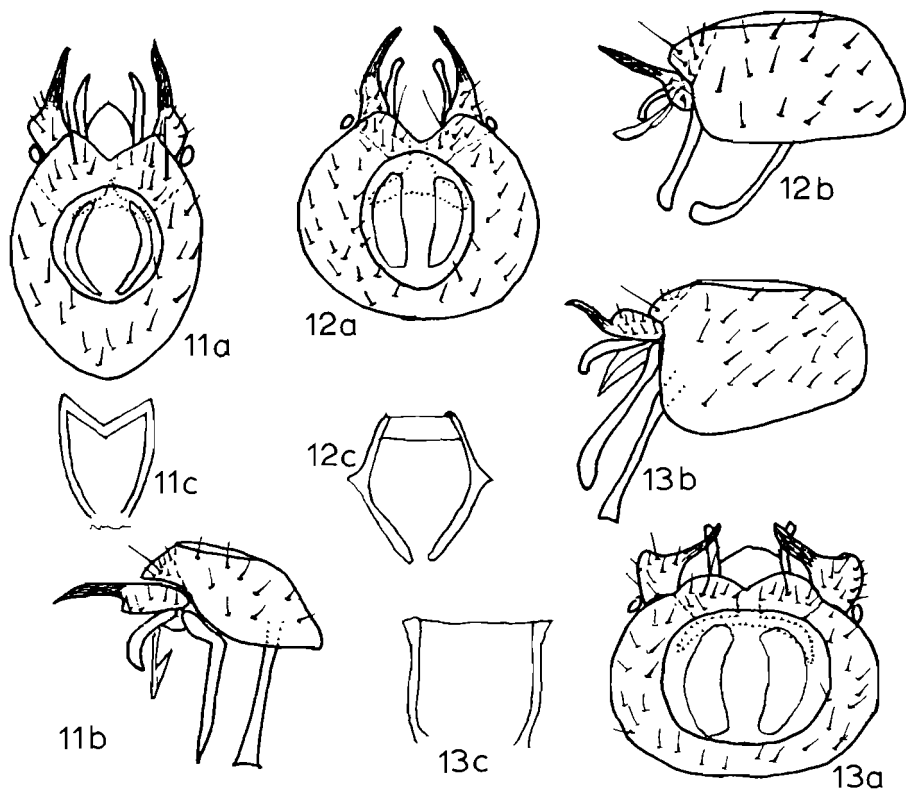
South Africa, Cape Province: Knysna district, Swart River forest, between George and Knysna, humus, January, 1961 (ZA. 59). ♂ holotype, 7 ♂ 8 ♀ paratypes.

(6) *Scutellisetia xanthothorax* sp.n.

♂ ♀. Black; head blackish to dark brown with antennae yellow brown; legs and thorax light reddish-brown, femora and tibiae (especially front tibia) somewhat darker, fore tarsal segments 2-5 whitish. Length 1.5-1.7 m.m.

Eyes relatively large, longer diameter hardly twice as long as shorter one, inner margin very little emarginate opposite antennae, ocelli small. Buccae in front three-quarters as wide as third antennal segment, two and a half times as wide behind, posterior corner somewhat rounded, perpendicular from it onto eye not quite as long as shorter diameter of eye. Arista four and a half times as long as the antenna with short pubescence. Frontal area not very narrow but poorly defined, three small interfrontals, one moderate anterior outwardly and backwardly directed superior orbital, one large posterior outwardly and backwardly directed superior orbital. Thorax nearly quadrate, only a little broader behind than in front nearly twice as long as head, one strong dorsocentral only just behind the suture; scutellum less than two and a half times as wide as long, apical bristles very long, basals minute, hind margin distinctly curved; sternopleural bristle minute or absent. Wings absent. Prosternum quadrate, front margin about straight. Wings and halteres absent. Fore leg with the coxa nearly as long as tibia, mid legs with the ♂ trochanter bearing 3 short stout oblique bristles, femur with one stout anterior preapical bristle, tibia with a strong dorsal bristle at $\frac{1}{3}$ and $\frac{4}{5}$, each surmounted by a small posteroventral, a rather short apicoventral, basitarsus long, longer than half length of tibia, with rather coarse setulae beneath. Abdomen long oval, a little longer than head + thorax and a little wider than the thorax, sternite 3 about six times as wide as long, Genitalia (fig. 10) with anal split long oval with weak crescentic sclerotisations, basal expansions of aedeagus rather small, widely divaricate; cerci weakly sclerotised, meeting in a point at the mid-line; hardly pointed below, with one long and a number of short bristles; forceps with basal part not large, outer side subangular, surface with short bristles, process little curved, black, nearly parallel to its fellow; posterior gonapophyses a little thickened at the end, in side view strongly bent downwards; aedeagus with lateral struts approximated at base but generally parallel, joined by a thin plate, generally shovel-shaped; ♀ cerci with a short straight bristle.

South Africa, Cape Province: Humansdorp district, Wit Els Bos, 20 km. east of Storms River, humus, January, 1961 (ZA. 63), ♂ holotype 7 ♀ paratypes (partly fragmentary)



Figs. 11-13. Male genitalia of (11) *Scutellisetia coriacea* Richards, (12) *S. lepidogaster* sp. n., (13) *S. peregrina* sp. n., (a) dorsal, (b) right side, (c) aedeagus dorsal.

bristles on distal half of costa, apex and almost whole hind margin. Mid legs with no modified bristles on ♂ trochanter, femur with one stout anterior preapical, tibia with a strong dorsal bristle at $\frac{1}{4}$ and $\frac{4}{5}$ surmounted in each case by a small anterodorsal bristle and the latter also, usually, by a small posterodorsal, a moderate apicoventral, basitarsus long, fully half as long as tibia, with stout rather sparse setulae beneath. Abdomen moderately long oval, distinctly longer than head + thorax and wider than the thorax, surface dull, reticulate, points of origin of microchaetes slightly raised so that the tergites look somewhat scaly, sternite 3 nearly eight times as broad as long, Genitalia (fig. 12) with anal split relatively small, broad oval with large feebly sclerotised crescentic patches, basal expansions of aedeagus with acute arms joined behind in a smooth curve; cerci nearly square but anterior corner rounded, meeting for a short distance on mid line, with one long and many short bristles; forceps with a small basal bristly portion and a moderately long black spike, slightly curved downwards and directed obliquely inwards so as to meet the tip of its fellow; posterior gonapophyses rather well separated but somewhat convergent, rather strongly bent downwards; aedeagus with somewhat broad, distally convergent lateral

(7) *Scutelliseta coriacea* Richards, 1960

Partially redescribed from alcoholic specimens, the original material was mounted dry. ♂ ♀. Black, ventral part of head reddish tinged; antennae yellow-brown; legs reddish-brown, fore tibia blackish, fore tarsal segments 2-5 white, trochanters also paler. Length 1.5-1.75 mm.

Anterior superior orbital bristle smaller than posterior one. Fore coxa elongate, especially in ♂, about as long as the tibia. Prosternum quadrate, as wide or wider than fore femur. ♂ mid trochanter on inner side with 3-4 short black bristles. Genitalia (fig. 11) without the tubercle on the ninth tergite mentioned in the original description (it seems to have been an artifact), anal split rather small, broad oval, with feebly sclerotised crescentic patches; cerci large but weakly sclerotised, meeting to some distance along mid-line; forceps with basal part approximately a parallelogram from which projects a long black (at least at tip) pointed process, curving slightly inwards and downwards; posterior gonapophyses rather more ventral and widely separated than usual, finger-shaped, not acutely pointed, curving strongly downwards; aedeagus consisting of two stout curving struts joined just before their tips by a narrow band, tip of strut in side view with a point like a half arrowhead; ♀ cerci apparently with one short straight bristle each.

South Africa, Cape Province: Humansdorp district, Tsitsikama forest, near Storms River, humus January, 1961 (ZA. 60), 2 ♂ 2 ♀.

This is almost the same locality as that where the type-material was collected.

GROUP 3. PROSTERNUM QUADRATE (FIG. 3.). DORSOCENTRAL BRISTLE ARISING NEAR THE SCUTELLAR FRONT MARGIN:

(8) *Scutelliseta lepidogaster* sp.n.

♂ ♀. Black; face and lower part (sometimes also upper part) of head more or less reddish-tinged; antennae yellow-brown; fore tarsus with segment 1, sometimes 2, and 5 brownish, 2 or 3-4 white; mid tibia, often femur, and tarsi reddish-brown; hind tarsi brown. Upper surface apparently dull, abdomen appearing almost scaly. Length ♂ 1.3-1.5, ♀ 1.2-1.9 mm.

Eyes a little reduced, longer diameter rather more than twice as long as the shorter one, inner margin a little emarginate opposite the antenna, ocelli small. Buccae in front three-quarters as wide as third antennal segment, three times as wide behind, posterior angle a right angle, perpendicular from it onto eye distinctly longer than shortest diameter of eye. Arista $4\frac{1}{2}$ times as long as antenna, with moderately long pubescence. Frontal area feebly defined by two less dull stripes rather narrow, interfrontals scarcely recognisable, one moderate forwardly and outwardly directed posterior superior orbital bristle, Mesoscutum clearly transverse, much broader behind where somewhat angled than in front, only one-third longer than head, a moderate dorsocentral (a little in front of scutellum but behind the mid-point between it and the suture); scutellum transverse, two and a half times as broad as long, hind margin distinctly curved. apical bristle about as long as the dorsocentral, basal bristle rather more than half as long; sternopleural small but distinct. Prosternum quadrate, anterior margin straight. Wings in both sexes rather broadly triangular, extending to the posterior margin of scutellum, dark, costa feebly indicated, with rather long close

struts, narrowly joined at the tip and with a marked angular process at mid point. Cerci in ♀ with two short slightly sinuous bristles.

South Africa, Transvaal: district of Pilgrim's Rest, Mariepskop forest, 1400 m, in humus, August, 1960 (ZA. 8), 1 ♂ holotype, 27 ♂ 21 ♀ paratypes; lower boundary of Mariepskop forest, brushwood remains of a population of *Grevillea*, 1100 m., in humus, August, 1960 (ZA. 10), 1 ♀ paratype.

(9) *Scutelliseta peregrina* sp.n.

♂ ♀. Head, thorax and legs light orange-brown, abdomen black. Fore basitarsus darker brown, segments 2-5 white. Cuticle probably shining. Length ♂ 1.5-1.7, ♀ 1.4-1.6 mm.

Eyes large, longer diameter about one and a half times as long as shorter one, margin a little concave opposite the antenna, ocelli small, triangle very broad based. Buccae in front fully three-quarters as wide as third antennal segment, two and a half times as wide behind, posterior corner rounded, perpendicular from it onto eye about half the shorter diameter of eye. Arista about five times as long as antenna, with moderately long pubescence. Frontal area feebly defined but wide about three pairs of minute interfrontals, one moderate posterior superior orbital directed outwards and forwards. Mesoscutum not strongly transverse, not quite half as long again as head, dorsocentral bristle rather weak, nearer to scutellum than to suture; scutellum more than two and a half times as broad as long, hind margin feebly curved, apical bristles strong, widely separated, basal bristles minute; sternopleural bristle not developed. Prosternum (fig. 3) about as long as broad but outline often rather curved so that base is wider than anterior end. Wings in both sexes present as minute scales 0.06 mm. long. Mid legs with no short modified bristles on ♂ trochanter, femur with one short anterior preapical, tibia with a strong dorsal at $\frac{1}{4}$ surmounted by a minute bristle, a smaller dorsal at $\frac{2}{5}$ surmounted by minute antero- and posterodorsals, an apicoventral, basitarsus long, more than half as long as tibia with somewhat sparse setulae beneath. Abdomen long oval, longer than head + thorax and wider than thorax, sternite 3 about $4\frac{1}{2}$ times as wide as long. Genitalia (fig. 13) with anai split nearly circular with two narrow feebly sclerotised areas, basal expansion of aedeagus with narrow, widely divaricate arms; cerci feebly sclerotised, subquadrate, not well-separated from ninth tergite, meeting for a short distance on mid line, with one long and a number of short bristles; forceps basal part large, protruding in a rounded lobe, bearing short bristles, process blackened, curved outwards but directed obliquely inwards, relatively short; posterior gonapophyses lying immediately under processes of forceps (rather approximated therefore), end not expanded or truncate, a little bent downwards; aedeagus with widely separated rather stout struts joined by a thin sclerite. Female cerci with two short, nearly straight bristles.

South Africa, Transvaal: district of Pilgrim's Rest, Mariepskop Forest, 1400 m., in humus, August, 1960 (ZA. 8), ♂ holotype, 20 ♂ 16 ♀ paratypes; the same place, Ericetum overhanging Mariepskop Forest, 1800 m., in humus, August, 1960 (ZA. 11A), 1 ♂ paratype.

(10) *Scutelliseta leonina* sp.n.

♂. Light reddish-brown, fore tibia and basitarsus darker, antennae, frontal area, mid and hind legs paler; fore tarsal segments 2-5 and fore coxae white. Cuticle apparently shining. Length 1.9 mm.

Eyes quite large, longer diameter rather less than twice as long as shorter one, inner margin opposite antenna scarcely emarginate, ocelli distinct. Buccae in front hardly more than half as wide as third antennal segment, two and a half times as wide as behind, posterior corner rounded, perpendicular from it onto eye considerably shorter than the lesser diameter. Arista $4\frac{1}{2}$ times as long as antenna with short pubescence. Head with frontal area relatively broad, three minute interfrontals, one moderate anterior outwardly and backwardly directed superior orbital, one moderate posterior inwardly directed superior orbital, two or three microscopic bristles behind the external vertical and a microscopic post-vertical on each side. Mesoscutum quadrate, nearly twice as long as head, not much wider behind than in front. a strong (but broken) dorsocentral on each side, close to scutellum; scutellum less than two and a half times as wide as long, hind margin distinctly curved apical bristles evidently strong but broken, basals very small; sternopleuron with a moderately strong bristle. Prosternum quadrate, fore margin a little emarginate. Wings narrowly triangular, extending to middle of first tergal plate. Fore legs with coxa relatively long, ♂ fore tarsi posteriorly with rather longer hairs than usual; ♂ mid legs with trochanter with 4 short oblique bristles on inner side, femur with a short stout anterior preapical bristle, tibiae with stout dorsal bristles at $\frac{1}{4}$ and $\frac{3}{8}$, former surmounted by a minute antero-dorsal, latter by a minute posterodorsal, a small apicoventral, basitarsus rather long, half as long as tibia, with somewhat coarse ventral setulae; Abdomen long oval, distinctly longer than head + thorax and a little wider than thorax, sternite 3 five times as wide as long. Genitalia (fig. 14) with anal almost circular, sclerotisations very weak, expansions of base of aedeagus short, blunt, widely divaricate; cerci very feebly sclerotised, meeting shortly on mid line, ventral margin rounded, with one long and a number of short bristles; forceps with basal part small, subcircular, bristly, outer margin forming a rather prominent curve, black process short, approximated to its fellow, curving somewhat outwards; posterior gonapophyses widely separated, rather long, end a little widened, not bent downwards except at extreme tip; aedeagus with lateral struts rather thickened in vertical plane, angled beneath at centre, converging at base and apex, joined by a thin plate.

South Africa, Natal: Lions River district, Howick, above the falls of the Umgeni River, in humus under brushwood, October, 1961 (ZA. 77a), 1 ♂ holotype.

(11) *Scutelliseta bicolorina* sp.n.

♂ ♀. Shining orange; abdomen and a vertical stripe on the pteropleuron black, in ♀ mesosternal region also darker. Fore femur, tibia and basitarsus darker tinged, fore tarsus 2-5 and fore coxa whitish. Length 1.3-1.5 mm.

Eyes large. Ocelli normal. Buccae in front about half as wide as third antennal segment, posterior corner a right angle, perpendicular from corner onto eye equal to rather more than half least diameter of eye. Arista about five to six times as long as antenna with

very short pubescence. Frontal triangle apparently scarcely marked off, head on each side with three small interfrontals, two large superior orbitals one directed outwards, one inwards. Mesoscutum about twice as long as head, mesoscutum about quadrate but sides a little rounded a little narrower than head with eyes, dorsocentral rather widely separated from its fellow, arising near scutellum. Scutellum clearly transverse, though hind margin is curved, apical bristles long (half as long again as dorsocentral), basal bristles short less than half as long as apical, sometimes only $\frac{1}{4}$ as long; ♂ only with elongate triangular wings with indications of a costa on proximal half, wings extending rather less than half way across tergal plate, ♀ wingless. One moderately long sternopleural bristle. Prosternum as wide as fore femur and a little longer than broad. Fore coxa at least three quarters as long as tibia; mid legs with three or four short stout oblique bristles beneath trochanter of ♂, no bristles here in ♀, femur with only the usual anterior preapical, tibia with a long dorsal at $\frac{1}{4}$ and $\frac{3}{4}$, a long apicoventral, basitarsus long, nearly half as long as tibia, with rather stout setulae beneath. Abdomen twice as long as wide in ♀, two and a half times as long in ♂, sternite 3 five times as broad as long. Genitalia (fig. 15) with anal split broad oval with two weakly sclerotised areas; cerci triangular, meeting on mid line; posterior gonapophyses short, straight, blunt-ended, well separated; forceps consisting of a triangular basal piece whose outer margin does not project and from which a black curved hook projects; aedeagus consisting of a pair of widely separated rather stout struts, angled beneath, joined by a more or less square plate from which at apex projects a small membranous process; ♀ cerci each with two short bristles.

South Africa, Natal: district of Bergville, Natal Drakensberg, forest along Oqalweni River, 1800 m. in humus, October, 1960 (ZA. 26), ♂ holotype, 5 ♂ 5 ♀ paratypes; the same place, forest in the Indumeni Valley, 1600-1800 m. in humus, October, 1960 (ZA. 23, 23A), 2 ♂ 4 ♀ paratypes.

(12) *Scutelliseta brunneonigra* sp.n.

♂ ♀. Dull reddish-brown, rather dark, abdomen and stripe on metapleuron black; legs darker brown, fore femur, tibia and basitarsus almost black, fore tarsi 2-5 white, mid and hind tarsi and all coxae and trochanters yellowish-brown. Length 1.3-1.6 mm.

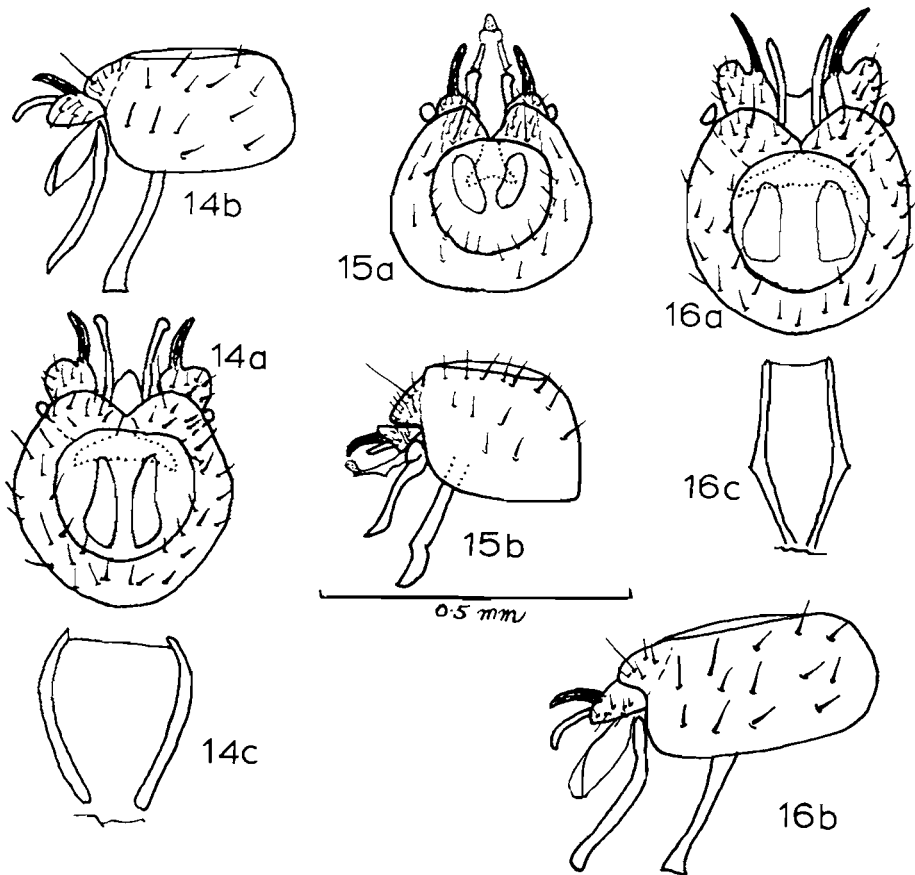
Structurally resembles *S. bicolorina* sp.n. except:

ocelli absent; buccae in front $\frac{3}{4}$ as wide as third antennal segment; arista 6-7 times as long as antenna; frontal triangle narrow, somewhat darker and more shining than rest of head, only two interfrontal bristles, outwardly directed anterior superior orbital rather smaller; mesoscutum about as wide as head with eyes, postalar very long; apical scutellar bristles bent upwards and sometimes more or less forwards, tips crossed, basals about $\frac{1}{3}$ as long as apicals; sternopleural bristle minute; prosternum somewhat wider, a little wider than fore femur, rounded and feebly emarginate in front; fore leg shorter and thicker, including coxae. ♂ mid trochanter with no obvious oblique ventral bristles, mid tibia with a small bristle above the dorsal one at $\frac{1}{4}$ and one or more often two above the dorsal one at $\frac{3}{4}$ but lying more posteriorly, mid basitarsi with longer setulae beneath; abdomen a little wider; genitalia very similar but black hooks of forceps a little narrower and more pointed, basal expansions of aedeagus much more transverse and pointed.

South Africa, Transvaal: Barberton district, Twello forest, 1372 m., humus, October, 1961 (ZA. 69), ♂ holotype, 5 ♂ 4 ♀ paratypes.

(13) *Scutelliseta swaziana* sp.n.

♂ ♀. Head, thorax and legs dark reddish-brown, fore femur, tibia and basitarsus darker, especially in ♂, fore tarsus segments 2-5 white, abdomen black. Hind tibia also sometimes rather dark. Centre of frontal stripe and part of area between frontal area and orbits darker, so that the top of the head appears three-striped. Surface probably dull, abdomen perhaps coarsely reticulate. Length about 1.6 mm.



Figs. 14-16. Male genitalia of (14) *Scutelliseta leonina* sp. n., (15) *S. bicolorina* sp.n., (16) *S. swaziana* sp.n., (a) dorsal, (b) right side, (c) aedeagus dorsal.

Eyes quite large, longer diameter about twice as long as shorter one, inner margin slightly emarginate opposite antennae, ocelli fairly distinct. Buccae in front hardly wider than half width of third antennal segment, two and a half times as wide behind, posterior corner rounded, perpendicular from it onto the eye-margin considerably shorter than half the length of the lesser diameter. Arista $4\frac{1}{2}$ -5 times as long as antenna with short pubescence. Head with frontal area moderately broad, one moderate anterior outwardly and backwardly directed superior orbital, one strong posterior inwardly and backwardly directed superior orbital. Mesoscutum just transverse, not quite one and a half times as long as head, a little wider behind than in front, a small dorsocentral (sometimes difficult to distinguish) arising near the scutellum; scutellum nearly two and a half times as wide as long, hind margin distinctly curved, scutellar apicals very long, basals at least one-third as long; sternopleural bristle apparently absent. Prosternum quadrate, front margin very slightly emarginate. Wings minute and only just detectable in ♀, long, narrow, triangular in ♂, extending half way across first tergal plate. Fore legs with coxa rather short, about two-thirds as long as tibia; mid legs with trochanter in ♂ without modified bristles, femur with a stout anterior preapical, tibia with strong dorsals at $\frac{1}{3}$ and $\frac{2}{3}$, former surmounted by a small posterodorsal, latter by a small anterodorsal, a moderate apicoventral, basitarsus long, fully half as long as tibia, with coarse setulae beneath; Abdomen long oval, markedly longer than head + thorax and wider than thorax, sternite 3 about five times as wide as long. Genitalia (fig. 16) with anal split subcircular, sclerotisations rather strong, subtriangular, basal expansions of aedeagus rather narrow, pointed, strongly divaricate; cerci feebly sclerotised, meeting for a short distance on the mid line, rounded below, with one long and many short bristles; forceps with basal part small, subcircular, strongly projecting laterally in a curved lobe, process thin, black pointed, curved outwards; posterior gonapophyses moderately approximated, end not expanded, in side view only extreme end bent downwards, hooked; aedeagus with rather broad, almost parallel lateral struts, slightly angled at centre, joined by a thin plate; ♀ cerci with a straight bristle.

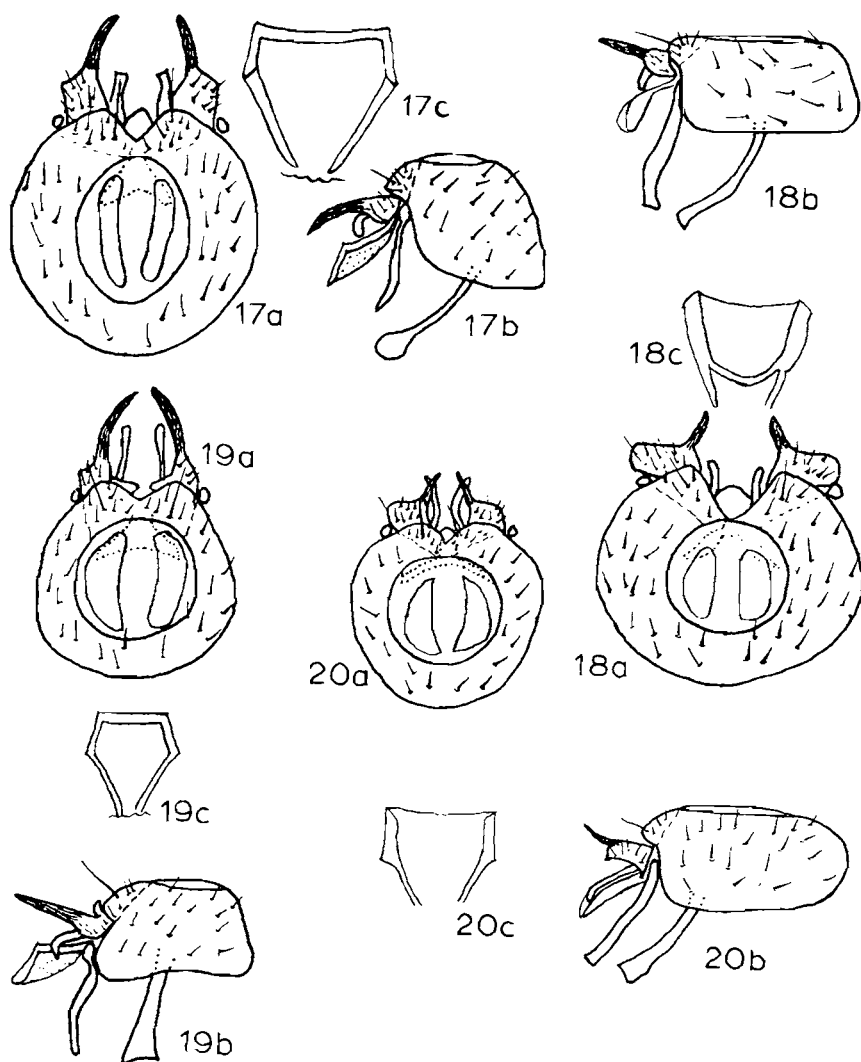
Swaziland, near frontier with Transvaal: Piggs Peak region, shady forest, 1311 m., humus, October, 1961 (SW.4) ♂ holotype, ♀ paratype; the same place, remains of shady forest, 1219 m., humus, October, 1961 (SW.3), ♂ 5 ♀ paratypes.

GROUP 4. PROSTERNUM TWICE AS WIDE AS LONG (FIG. 4).

(14.) *Scutelliseta microptera* sp.n.

♂ ♀. Black, head including antennae light orange. Legs orange-brown, all coxae at least in part, fore femur, tibia and basitarsus darker, fore tarsus 2-5 light brown rather than white. Body apparently shining. Length ♂ 1.1-1.2, ♀ 1.2-1.3 mm.

Eyes slightly reduced about twice as long as broad, with a slight emargination opposite antenna, ocelli very small. Buccae in front two-thirds as wide as third antennal segment, more than two and a half times as wide as behind, posterior corner somewhat rounded, perpendicular from corner onto eye about equal to least diameter of eye. Arista 5-6 times as long as antenna with very short pubescence. Frontal triangle rather broad and defined by its different sculpture, head on each side with two minute interfrontals, one moderate



Figs. 17-20. Male genitalia of (17) *Scutelliseta microptera* sp.n., (18) *S. melanogaster* sp.n., (19) *S. nigrocaerulea* sp.n., (20) *S. procoxalis* sp.n., (a) dorsal, (b) right side, (c) aedeagus dorsal.

posterior outwardly and backwardly directed superior orbital. Mesoscutum transverse, half as long again as head, a moderate prescutellar dorsocentral; scutellum more than twice as wide as long, hind margin moderately curved, apical bristles moderate, not much diverging, basals small; sternopleuron with one small bristle. Prosternum nearly twice as wide as long, anterior margin a little concave, width about the same as that of fore femur. Wings small, narrow, whitish, without bristles, extending back to hind margin of scutellum, smaller in ♀. Fore legs with coxa less than two-thirds as long as tibia; mid legs with no modified bristles on ♂ trochanter, femur with one stout preapical anterior bristle, tibia with a moderate dorsal bristle at $\frac{1}{4}$ and $\frac{3}{8}$, latter surmounted by a small anterodorsal, and an apicoventral; mid basitarsus more than half as long as tibia with rather coarse setulae beneath. Abdomen broad oval, especially in ♀, longer than head + thorax and broader than thorax, sternite 3 about six times as wide as long, sternites with moderately short bristles. Genitalia (fig. 17) with anal split broad oval, with two large but very weakly indicated sclerotised areas, basal expansion of aedeagus triangular, very little emarginate; cerci meeting for a short distance along mid-line. large but very feebly sclerotised, not much pointed, bearing one long and a number of short bristles; forceps with an approximately square basal part, outer angle a right angle, with quite numerous but rather short bristles, process long, rather thin, black, curved a little outwards and downwards; posterior gonapophyses approximated, end a little expanded and truncate and in side view the end rather sharply bent downwards; aedeagus with lateral struts diverging to mid point where there is a slight angular projection, then parallel to apex where joined by a narrow transverse band; ♀ cerci with two short straight bristles.

South Africa, Transvaal: district of Pietersberg, Woodbush forest, humus, September, 1960 (ZA.16A), ♂ holotype, 2 ♂ 18 ♀ paratypes, (ZA.16b) 24 ♀ paratypes; the same place, in clay ravine near lower slopes of Woodbush forest, September, 1960 (ZA.18), 1 ♂ 4 ♀ paratypes; the same place, herbaceous peaty valley of Helpmekaar R., basin of the Letaba, lower slopes of the Woodbush, on river bank, September, 1960 (ZA.19), 1 ♀ paratype; the same place, source of the Helpmekaar R., on lower slopes of Woodbush, in humus, September, 1960 (ZA.20), 1 ♀ paratypes.

(15) *Scutelliseta megalogaster* sp.n.

♂ ♀. Head yellow-brown with three darker stripes; thorax very dark brown; abdomen black; legs reddish-brown, mid and hind coxae black, femora especially mid and hind pair often darker brown, fore tarsal segments 2-5 rather paler but not white. Cuticle apparently shining but pleura probably strongly dusted. Length about 1.5 mm.

Eyes somewhat small, but greater diameter hardly twice as long as lesser one and margin scarcely emarginate opposite antenna, lateral ocelli absent, median ocelli present in ♂ only, but minute. Buccae in front fully three-quarters as wide as third antennal segment, three times as wide behind, posterior corner a rounded right angle. perpendicular from it onto eye almost as long as the lesser diameter of the eye. Arista 5 times as long as antenna with short pubescence. Frontal area dark, narrow, separated from orbits by another dark stripe, 3-4 minute interfrontals, one minute posterior superior orbital. Mesoscutum distinctly transverse, a little broader behind than in front, not much longer and scarcely

broader than head with eyes, bristles mostly short but postalar and dorsocentral strong, latter separated by less than half its length from scutellar front margin; scutellum very transverse but hind margin moderately curved, apical bristle strong, basal bristle more than half as long, these bristles approximated as the apicals are widely separated; sternopleural bristle absent. Wings in ♂ long triangular just extending back to first tergite, in ♀ very short, reaching back to hind margin of scutellum. Prosternum about twice as wide as long, front margin straight. Fore leg with coxa short, considerably shorter than tibia; mid leg with no modified bristles on ♂ trochanter, femur with anterior preapical bristle quite small, tibia with moderate dorsal bristles at $\frac{1}{2}$ and $\frac{3}{4}$ surmounted by minute posterodorsal bristles, a small apicoventral, basitarsus about half as long as tibia with fine close setulae beneath. Abdomen broad oval, much longer and broader than head + thorax, sternite 3 eight times as wide as long. Genitalia (fig. 18) with anal split about circular with two rather strong subtriangular sclerotisations, basal expansions of aedeagus pointed, subtriangular, not very large; cerci subquadrangular, not much angled below, not quite meeting at mid line, weakly sclerotised, with one strong and a number of small bristles; forceps with basal part transversely subquadrangular, angles rounded, strongly projecting laterally, with many small bristles, process small, black, pointed, straight, arising from inner corner of basal part and converging on its fellow; posterior gonapophyses small, approximated, not truncate or hooked, not much bent downwards; aedeagus with lateral struts rather thick, convergent proximally angled downwards near mid-point and from here onwards parallel, joined by a thin plate; cerci in ♀ concealed.

Swaziland, near Transvaal border: Piggs Peak region, remains of shady forest, 1219 m., October, 1961 (SW.3), ♂ holotype, 2 ♂ 1 ♀ paratypes.

(16) *Scutellisetia nigrocaerulea* sp.n.

♂. Bluish-black, apparently shining; head dark reddish-brown, antennae yellow-brown, frons with conspicuous paler (? pollinose) stripes on each side of frontal area and along inner margin of eyes. Legs black, fore tarsi 2-5 white, trochanters and mid and hind tarsi yellow-brown. Length 1.2-1.5 mm.

Eyes a little reduced, about twice as long as broad, long axis directed obliquely forwards and downwards, inner margin slightly emarginate opposite antennae. Ocelli normal. Buccae in front nearly as wide as third antennal segment, posterior corner a right angle, perpendicular from corner onto eye about equal to smaller diameter of eye. Arista three and a half to four times as long as antenna with rather short pubescence. Frontal triangle long and narrow, about 3 minute interfrontals, one strong outwardly directed posterior superior orbital. Mesoscutum transverse, subquadrangular but a little broader behind, about as long as head, scutellum unusually broad and nearly half as long as mesoscutum, hind margin acute, very little curved, rather more than twice as wide as long, a rather short prescutellar dorsocentral; scutellum with basal bristles relatively long, about as long as dorsocentral, the apicals with their bases widely separated; sternopleuron with one small bristle, pleuron rather sharply angled with notum; prosternum (fig. 4) wide, transverse, twice as wide as long, slightly wider than fore femur, anterior margin slightly emarginate. Wings brownish, short (length 0.16 mm.) and broad, suboval, surface with many micro-

chaetes and margins with quite long bristles. Mid trochanters in ♂ without distinct short bristles, femur with one short, stout anterior preapical, tibia with strong dorsal bristles at $\frac{1}{4}$ and $\frac{3}{4}$, latter surmounted by a small anterodorsal, no mid ventral but a short apicoventral, basitarsus long, nearly half as long as tibia, with rather coarse setulae beneath. Abdomen broad oval, a little broader than thorax and a little longer than head + thorax, length to breadth as 11.8, very wide at base, surface with not very dense, somewhat long, semidicumbent microchaetes, sternite 3 at least six times as wide as long. Genitalia (fig. 19) with anal split almost circular with large feebly sclerotised areas, cerci large but weakly sclerotised, meeting for a short distance on mid-line with one long and many short bristles; forceps with bases rather widely separated, irregularly oval, base, with a short broad pointed inner process near where it meets the cerci and also with long, narrow, black, spike-like process which curves inwards so that their points meet; posterior gonapophyses widely separated, narrowly finger-shaped, rather strongly curved downwards; aedeagus wide, with lateral struts which have an angular projection and are bent downwards near the mid-point and are joined at their tips by a narrow transverse bar. Cerci in ♀ with two short straight apical bristles.

South Africa, Transvaal: Pilgrim's Rest district, Graskop forest, humus, August, 1960 (ZA.15), ♂ holotype, ♂ paratype; the same place, Ericetum overhanging the forest of Mariepskop, 1800 m., humus, August, 1960 (ZA.11A,11b), 3 ♂ 4 ♀ paratypes.

(17) *Scutelliseta procoxalis* sp.n.

♂ ♀. Black (two females immature and brownish); face sometimes slightly brown-tinged, antennae light brown; fore tarsal segments 2-5 white; mid legs brown, hind legs more or less brown-tinged, especially base of femur and the tarsi. A very distinct pale pubescent stripe on each side of frontal area, thorax and abdomen apparently shining but finely reticulate. Length ♂ 1.3-1.4, ♀ 1.2-1.6 mm.

Eyes scarcely reduced, longer diameter about twice as long as shorter one, inner margin very little emarginate opposite antenna, ocelli very small and indistinct. Buccae in front about two thirds as wide as third antennal segment, fully two and a half times as wide behind, posterior corner a right angle, perpendicular from it onto eye rather shorter than shortest diameter of eye. Arista 5 times as long as antenna, with rather short pubescence. Frontal area long and narrow and well-defined by the pubescent stripes, interfrontals scarcely visible, 1-2 minute ones, one strong posterior outwardly directed superior orbital. Mesoscutum transverse, rather wider and somewhat angled behind, one and a half times as long as head, one strong dorsocentral arising in front of scutellar suture but less than half way to scutal suture; scutellum strongly transverse, hind margin little curved, apical bristle as long as dorsocentral, basal bristle nearly half as long; sternopleural bristle minute. Prosternum nearly twice as wide as long, anterior margin feebly emarginate. Wings absent. Mid legs with no modified bristles on ♂ trochanter, femur with a stout anterior preapical, tibia with a strong dorsal at $\frac{1}{4}$ and $\frac{3}{4}$ each surmounted by a small bristle, a small apico-ventral, basitarsus long, fully half as long as tibia, with rather coarse setulae beneath. Genitalia (fig. 20) with anal split subcircular, with strong subtriangular sclerotisations, basal expansion of aedeagus with widely divaricate pointed arms, posterior

emargination obtusely angular; cerci weakly sclerotised, meeting for a short distance on mid-line with one long and many short bristles; forceps with basal part relatively large, bristly, outer margin in a prominent curve, black spike-like process short, directed obliquely inwards, feebly curved downwards; posterior gonapophyses widely separated but convergent, ends not expanded or truncate, in side view moderately curved down, particularly on the distal half; aedeagus with lateral struts first divergent then parallel, rather short, especially towards apex where joined by a transverse bar, in side view traylike; ♀ cerci each with a short straight bristle.

South Africa, Natal: Nongoma district, Ngomi forest, in humus, October, 1960 (ZA.37) ♂ holotypes, 7 ♂ 9 ♀ paratypes.

KEY TO THE SPECIES OF *SCUTELLISETA* RICHARDS

1. Prosternum about twice as long as broad, (Arista 4-5 times as long as antenna; fore coxa relatively short, scarcely more than two-thirds as long as tibia, reddish-brown or blackish; dorsocentral bristle arising posteriorly from a point about half its own length or less from the scutellar front margin). Cape Province. Group 1 2
- Prosternum about quadrate 4
- Prosternum about twice as wide as long. (One posterior superior orbital bristle, in one species very small; fore coxae blackish or dark brown; dorsocentral bristle arising posteriorly, more or less near the scutellum; scutellum very transverse, two and a half to three times as wide as long; ♂ mid trochanter without modified bristles on the inner side; abdomen one and a half times as broad as the thorax in ♀, rather narrower in ♂; thorax and abdomen black, latter smooth, without prominences). Group 4 . . . 13
2. Head with one posterior superior orbital bristle, orange-brown with three stripes. Fore tarsal segments 2-5 white. Scutellar apical bristles not longer than the dorsocentrals. Wings absent. ♂ mid trochanter on inner side with 4 short black bristles. Abdomen appearing scaly because the bristles arise from small convexities. ♂ genital forceps with basal part pyriform, outer edge not prominent, processes widely separated; posterior gonapophyses not bent downwards. Kirstenbosch. *S. mesaptiloides* sp.n.
- Head with two superior orbital bristles. Fore tarsal segments 2-5 pale but usually not pure white. Scutellar apical bristles more or less distinctly longer than the dorsocentrals. Abdomen smooth. ♂ genital forceps with basal part with a prominent outer edge, processes convergent 3
3. Head orange, more or less distinctly striped. Wings absent. ♂ mid trochanter with short dense pubescence on inner side; legs mainly reddish-brown. ♂ genital forceps with basal part subcircular, outer margin forming a prominent curve, eighth sternite exceptionally developed so as partially to surround the basal part of forceps, posterior gonapophyses a little hooked downwards at tip. Swellendam. *S. orbitalis* sp. n.
- Head blackish, not striped. Wings absent in ♀, long and narrow in ♂ (extending half way across 1st abdominal plate). ♂ mid trochanter on inner side with 3 very short stout black bristles; legs dark brownish to black. ♂ genital forceps with basal part approximately rectangular, proximal angle prominent, posterior gonapophyses strongly bent downwards. Caledon. *S. caledoniana* sp. n.

4. Dorsocentral bristle arising from a point at least two-thirds its length from scutellar front margin, almost half way to suture. Wings absent. (Arista 4-4½ times as long as antenna. Two superior orbital bristles, i.e., an anterior one present. Fore tarsal segments 2-5 whitish, fore coxa as long or nearly as long as fore tibia. Apical scutellar bristles long, basals minute or absent). Cape Province. Group 2 5
- Dorsocentral bristle arising from a point at most half its length from scutellar front margin, not half way to suture. Wings present, at least in ♂, even if microscopic size. Group 3 8
5. Head and thorax more or less yellow-brown. Mid tibia with two large paired dorsal bristles at ½. ♂ cerci very transverse, sharply angled ventrally. (Fore coxae dark; sternopleural bristle small; ♂ mid trochanter on inner side without short stout bristles; ♂ genital forceps with basal part rather large, subquadrate, posterior gonapophyses not bent downwards). Knysna *S. luteifrons* sp. n.
- Head blackish. Mid tibia with one large dorsal bristle at ½. ♂ cerci subquadrate, more or less rounded ventrally. ♂ mid trochanter on inner side with some short, stout, black bristles. 6
6. Thorax and fore coxa light reddish-brown. (Sternopleuron with bristle minute or absent. ♂ genital forceps with basal part not large, outer edge subangular, posterior gonapophyses strongly curved downwards. ♂ mid trochanter with 3 stout bristles). Humansdorp. *S. xanthothorax* sp. n.
- Thorax black or slightly brownish 7
7. Fore coxa brown. Sternopleural bristle quite distinct. ♂ mid trochanter with 3-4 bristles. ♂ genital forceps with basal part not externally angled, posterior gonapophyses strongly curved downwards. Humansdorp. *S. coriacea* Rich.
- Fore coxa whitish. Sternopleural bristle minute or absent. ♂ mid trochanter with 6-7 bristles. ♂ genital forceps with basal part more or less strongly angled externally, posterior gonapophyses not curved downwards. Knysna. *S. albicoxa* sp. n.
8. Head usually mainly black, thorax and abdomen black, latter with the somewhat long microchaetes arising from slight prominences. One posterior superior orbital bristle. Fore coxa dark brown, fore tarsal segments 2-4 or 3-4 white, 5 brownish. Both sexes with broadly triangular, short, dark, wings with inner margin with close bristles. Basal and apical scutellar bristles subequal in length. ♂ genital forceps with basal part small, processes nearly straight, convergent, posterior gonapophyses strongly bent downwards. Transvaal, Pilgrim's Rest. *S. lepidogaster* sp. n.
- Head and thorax usually pale, (sometimes darker) reddish-brown; abdomen black, surface smooth, microchaetes shorter. Fore coxa reddish or yellowish, fore tarsal segments 2-5 white. Female with at most scale-like wings. Basal scutellar bristle not more than one-third as long as the apical. 9
9. One posterior superior orbital bristle. Both sexes with microscopic scale-like wings, not longer than the basal scutellar bristle. ♂ genital forceps with basal part large, outer margin forming a prominent curve, process short, directed obliquely inwards but curved outwards, posterior gonapophyses a little curved downwards. Transvaal, Pilgrim's Rest. *S. peregrina* sp. n.

- Two superior orbital bristles. Female wingless or wings scarcely detectable, male with long narrow wings, longer than the apical scutellar bristle. Scutellum not strongly transverse, hind margin distinctly curved. ♂ genital forceps with basal part subtriangular or subcircular, outer margin not prominent, process longer, not convergent, posterior gonapophyses not curved downwards except at extreme tip. 10
10. Abdomen light reddish-brown. ♂ fore tarsi posteriorly with longer hairs than usual. (Sternopleural bristle moderately strong; ♂ mid trochanter with 4 short, stout bristles; ♂ genitalia with basal lateral expansions of aedeagus short, blunt, widely divaricate, basal part of forceps subcircular). Natal, Lions River. **S. leonina** sp.n.
- Abdomen black. ♂ fore tarsi without longer pubescence. 11
11. Sternopleural bristle moderately strong. Head and thorax rather pale reddish-brown. ♂ mid trochanter with 3-4 short, stout bristles; ♂ genitalia with basal lateral expansions of aedeagus broad, not so widely divaricate. (♂ genital forceps with basal part irregularly pyriform, outer margin not obviously curved). Natal, Bergville. **S. bicolorina** sp.n.
- Sternopleural bristle very weak or absent. Head and thorax darker brown. ♂ mid trochanter simple; ♂ genitalia with basal lateral expansions of aedeagus narrower, more pointed, more widely divaricate. 12
12. Ocelli absent. Top of head unstriped. ♂ with basal part of genital forceps irregularly pyriform, outer margin not obviously curved. Transvaal, Barberton. **S. brunneonigra** sp.n.
- Ocelli present. Top of head striped. ♂ with basal part of genital forceps subcircular, outer margin curved. Swaziland, Piggs Peak district. **S. swaziana** sp.n.
13. Head light yellow-brown to orange. Fore tarsal segments 2-5 pale but not white. Wings small and narrow. Scutellum with basal bristles 6-7, apicals 8-11. 14
- Head, blackish with distinct stripes on each side of frontal area. Fore tarsal segments 2-5 white. Wings broad or absent. Scutellum with basal bristles 7-11, apicals 7-13. (Fore coxa rather more than two-thirds as long as tibia). 15
14. Head not striped. Fore coxa hardly more than half as long as tibia. Wings in both sexes short and narrow, length 7-9. ♂ genital forceps with basal part almost square, outer margin forming a right angle, posterior gonapophyses with distal half bent downwards. Transvaal, Pietersburg. **S. microptera** sp.n.
- Head yellow-brown with three stripes. Fore coxa more than two-thirds as long as tibia. Wings in ♀ short and narrow (length 9), in ♂ long and narrow (length 17). ♂ genital forceps with basal part quadrangular, angles rounded, strongly projecting externally, posterior gonapophyses small, approximated, not bent downwards. Swaziland, Piggs Peak district. **S. megalogaster** sp.n.
15. Both sexes with small, dark, broadly triangular wings (length 9-13) with numerous long, marginal bristles. Basal scutellar bristles often a little larger than the apicals. ♂ genital forceps with outer margin of basal part not projecting but on inner side with a small transverse process, posterior gonapophyses strongly curved downwards. Transvaal, Pilgrim's Rest. **S. nigrocaerulea** sp.n.

- Both sexes wingless. Basal scutellar bristles clearly shorter than the apicals. ♂ genital forceps with outer margin of basal part forming a prominent curve, no inner process, posterior gonapophyses moderately curved downwards, especially on distal half. Natal, Nongoma. **S. procoxalis** sp.n.

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